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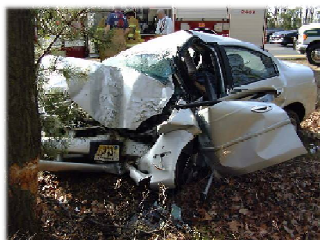
# Lane Departure and Roadside Collisions

## How Significant is the Issue?

Lane Departure resulted in 5,585 (53%) of the severe injuries in Iowa (2007-2011).

### Other Factors Involved

- Speed (66%)
- Local Roads (50%)
- Unprotected Persons (43%)
- Young Drivers (37%)
- 2-lane rural roads are most at risk considering these factors.



### Demographic

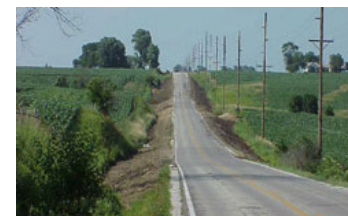
- 70% are caused by male drivers.
- 36% are caused by young drivers
- 50% severe injuries caused by drivers 25-64 years of age

### Location

- 77% on rural roads (State and Local Roads)
- Equal split between State and Local Roads
  - 50% State
  - 49% Local (County and City)
- 55% of severe injuries on the rural State system are on 2-lane roads with ADT of 2000-5000 vpd
- 58% of severe injuries on the rural County system are on paved roads

### Crash and Collision Type

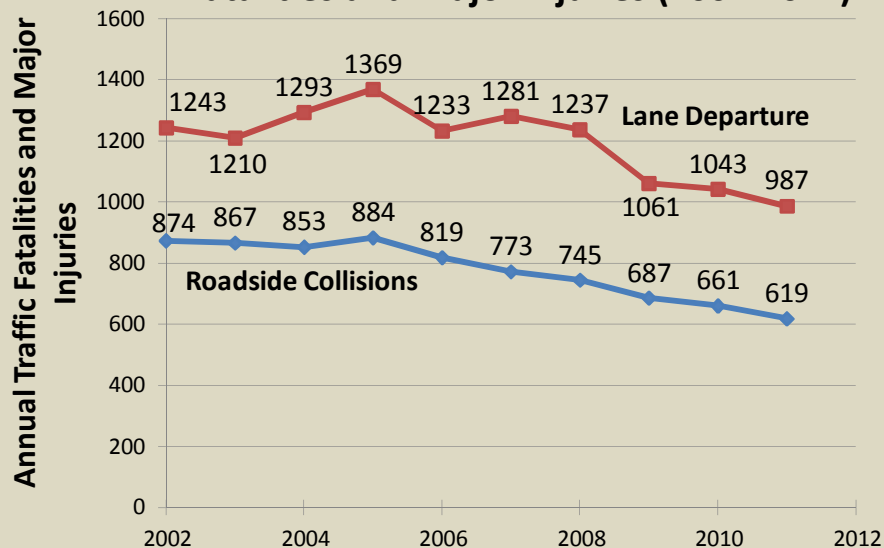
- 63% of severe injuries occur in single vehicle run off the road crashes
- 22% of severe injuries occur in cross centerline/median crashes
- 62% of severe injuries involve roadside collisions (25% collisions are with ditch/embankment)



### Other Facts

- 38% occur under dark conditions.
- 59% during daylight
- 68% occur on dry roads

**Annual Lane Departure and Roadside Collisions  
Fatalities and Major Injuries (2002-2012)**



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# Lane Departure and Roadside Collisions



Without  
Safety Edge



With  
Safety Edge

## Safety Edge Treatments

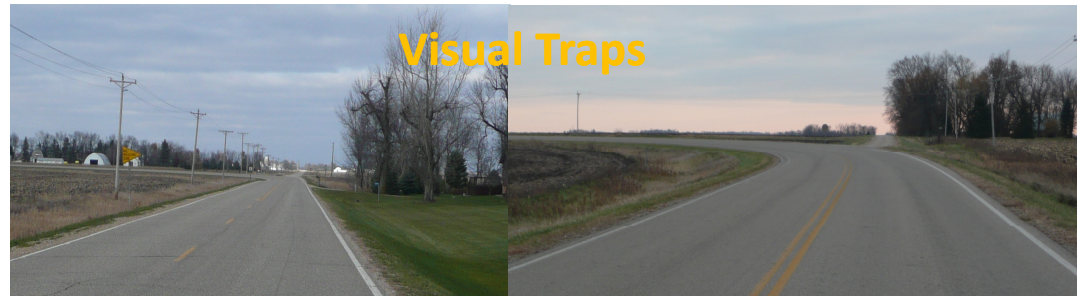


Paved Shoulder and  
Rumble Strip



Rumble StripE

## Rumble Strip and StripE



Visual Traps



Curves with Chevrons



6" Edgeline



Ground-In Wet Reflective Markings

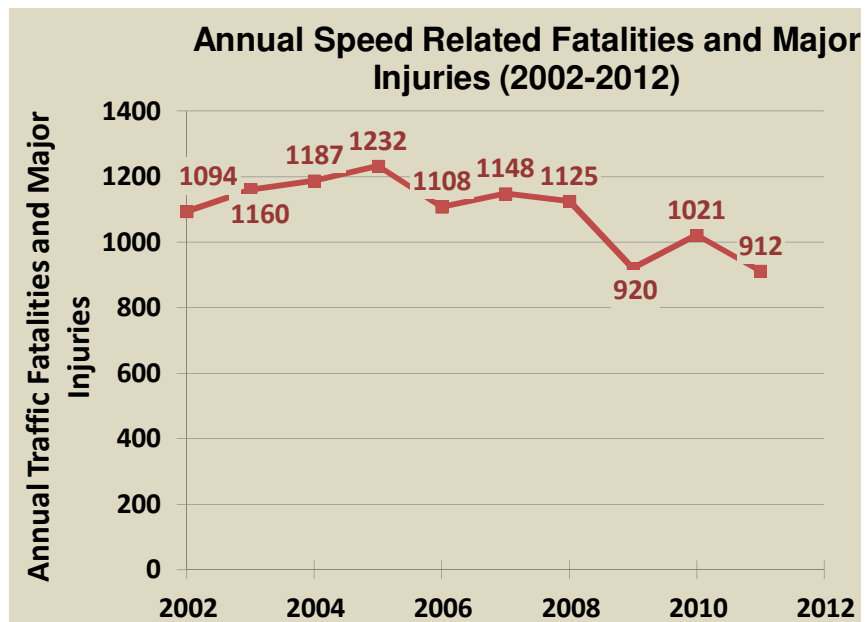
## Enhanced Pavement Markings

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## Speed Related

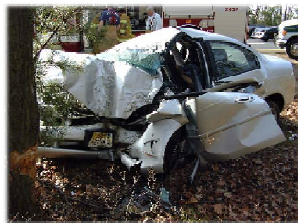
### How Significant is the Issue?

5,088 (48%) of the severe injuries in Iowa were Speed Related (2007-2011).



### Other Factors Involved

- Lane Departure (72%)
- Local Roads (54%)
- Roadside Collisions (48%)
- Unprotected Persons (45%)
- Young Drivers (38%)
- 2-lane rural roads are most at risk considering these factors.



### Demographics

- 19% of speed related severe injuries caused by drivers 15-20 years of age.



### Location

- 67% on rural roads (State and Local Roads)
- Severe speed related injuries are nearly split between systems
  - 46% State
  - 54% Local Roads (County and City)
- Roads most at risk by system (% of severe injuries on that road system):
  - State – 2-lane roads (38%)
  - County – Paved roads (56%)
  - City – 2-lane roads (76%)



### Other Facts

- Single Vehicle (69%) is the most common collision type with speed related severe crashes.
- More speed related crashes occurred noon – 8 PM (44%) and on weekends (Fri – Sun 51%).

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## Speed Related



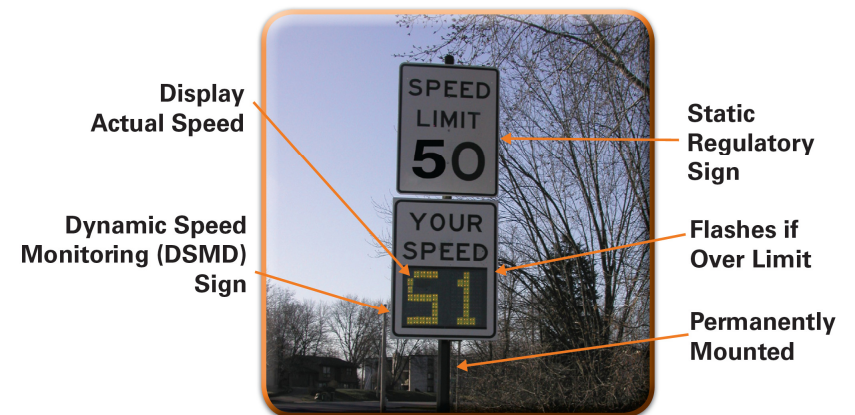
**Highly Visible/Saturated Enforcement**



**Automated and Supplemental Speed Enforcement**



**Intersection Lighting**



**Dynamic Speed Advisory Signs**

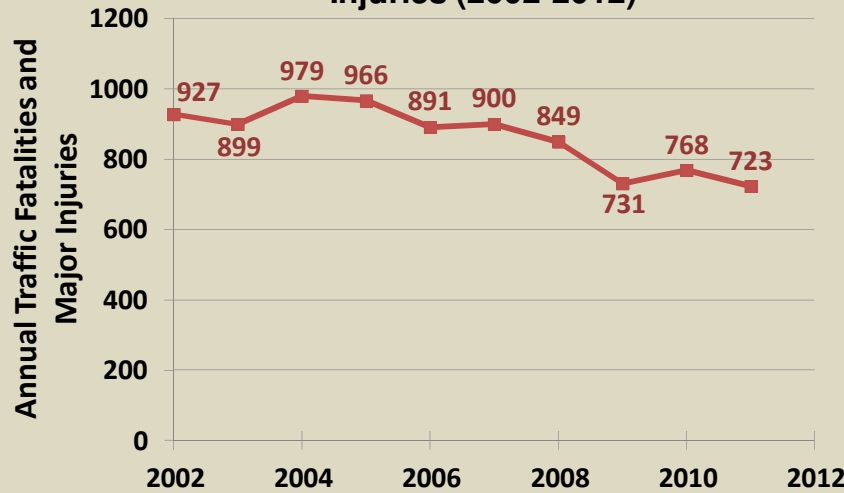
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# Unprotected Persons

## How Significant is the Issue?

3,937 (37%) of the severe injuries in Iowa involve Unprotected Persons (2007-2011).

**Annual Unprotected Fatalities and Major Injuries (2002-2012)**



## Other Factors Involved

- Lane Departure (61%)
- Speed Related (58%)
- Local Roads (56%)
- Young Drivers (40%)
- Roadside Collisions (39%)
- 2-lane rural roads are most at risk considering these factors.



## Demographics

- 19% caused by drivers 15-20 years of age.



## Other Facts

- 60% of severe injuries occur in single vehicle crashes
- 73% were vehicle occupants and 27% were unhelmeted motorcyclists.
- 45% of severe unprotected injuries occurred noon – 8PM
- 54% occurred on weekends (Fri-Sun).

## Location

- 67% on rural roads (State and Local Roads)
- Unprotected injuries are almost equally split between systems:
  - 44% State
  - 56% on Local Roads (County and City)
- Roads most at risk by system (% of severe injuries on that road system):
  - State – 2-lane roads (47%)
  - County – paved roads (53%)
  - City – 2-lane roads (79%)



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## Unprotected Persons



**Highly Visible/Saturated Enforcement**



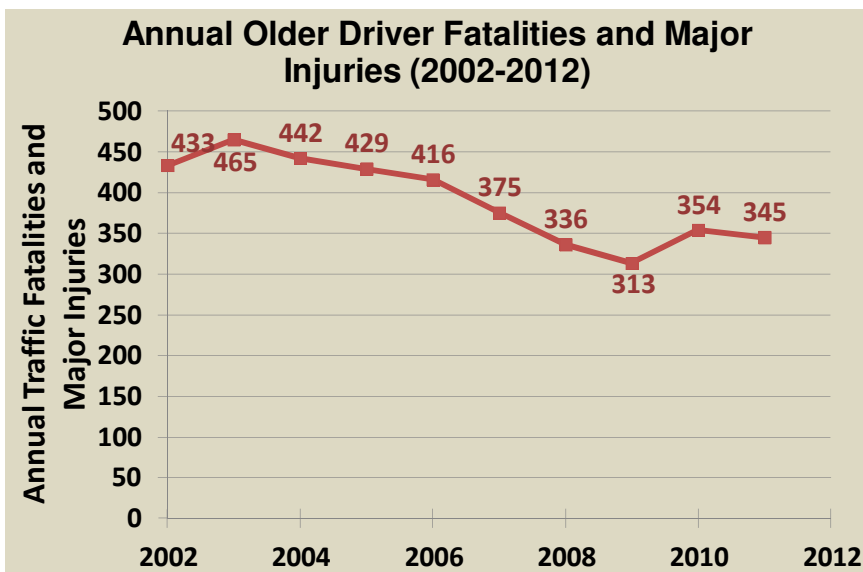
**Child Restraint/Seat Safety Education/Check Points**

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# Older Drivers

## How Significant is the Issue?

1,717 (16%) of the severe injuries in Iowa involve drivers 65 and older (2007-2011).



## Other Factors Involved

- Local Roads (44%)
- Intersections (43%)
- Lane Departure (43%)
- Speed (31%)
- Unprotected Persons (28%)
- 2-lane roads and intersections with multi lane roads are most at risk with these factors.



## Demographics

- 66% caused by an older male driver.
- 52% caused by drivers between the ages of 65-74.



## Other Facts

- Most common collision types:
  - 29% Broadside
  - 27% Single Vehicle
- 36% of severe injuries involving older drivers occurred noon-4 PM and 78% on weekdays (Mon-Fri).

## Location

- Older driver related severe injuries are almost equally split between systems:
  - 55% State (55%)
  - 45% Local Roads (County and City)
- 55% on rural roads (State and Local Roads).
- Roads most at risk by system (% of severe injuries on that road system):
  - State – 2-lane roads (45%)
  - County – Paved roads (69%)
  - City – 2-lane roads (75%)
- Severe injury intersection related crashes occur more often at urban intersections (58%).
- 58% of intersections severe injuries occurred at urban intersections.
- Intersections on the state system with multi-lane roads most at risk (51%).

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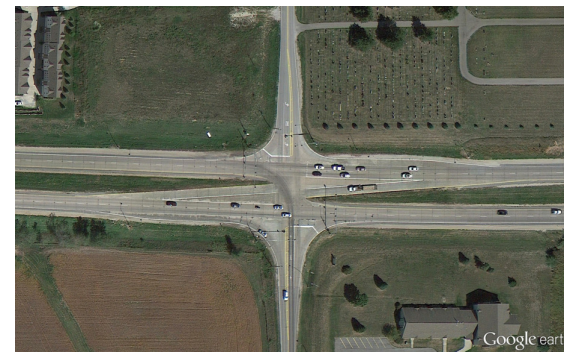
Older Drivers



**Highly Visible/Saturated Enforcement**



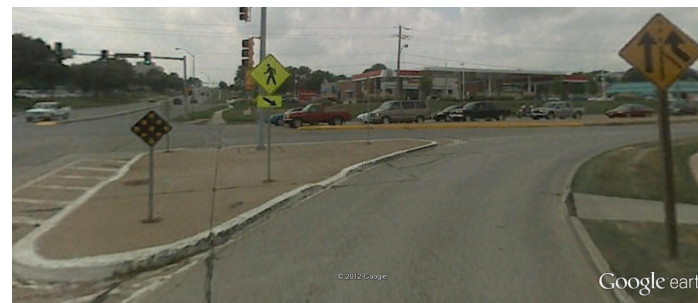
**Intersection Skew**



**Offset Left Turns**



**Roadway Delineation**



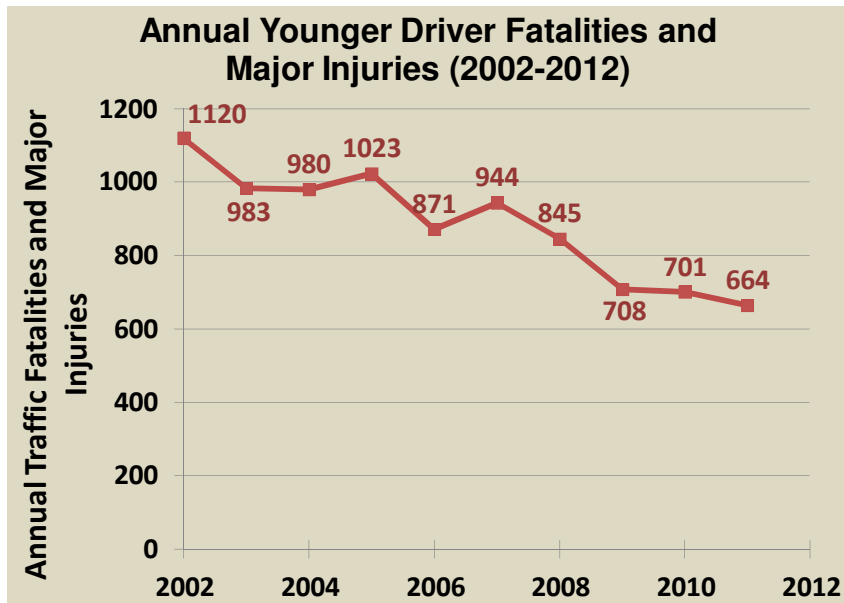
**Raised Channelization/Islands**

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## Young Drivers

### How Significant is the Issue?

3,831 (36%) of the severe injuries in Iowa involved drivers 14-24 years of age (2007-2011).



### Demographic

- 76% caused by young male drivers
- 50% caused by drivers 20-24 years of age.
- 47% caused by drivers 16-20 years of age.



### Location

- 57% on rural roads (State and Local Roads)
- 57% on Local Roads (County or City)
- Roads most at risk by system (% of severe injuries on that road system):
  - State – 2-lane roads (43%)
  - County – Paved roads (51%)
  - City – 2-lane roads (74%)

### Other Facts

- 83% of young driver related severe injuries occurred with passenger cars.
- Single Vehicle (43%) and Broadside (20%) are most common collision types.
- 47% of severe injuries occurred between noon-8 PM.
- 47% occurred on weekends (Fri-Sun).



### Other Factors Involved

- Local Roads (57%)
- Lane Departure (52%)
- Speed (51%)
- Unprotected Persons (41%)
- Intersections (33%)
- Rural and County 2-lane paved roadways are most at risk considering these factors.

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# Young Drivers

## GDL

Information on Iowa's  
**GRADUATED  
DRIVER  
LICENSING**  
system for drivers  
under the age of 18



## IOWA'S GDL SYSTEM

### 1. INSTRUCTION PERMIT

#### ELIGIBILITY REQUIREMENTS

- Must be at least 14.
- Must have written consent of parent, guardian or custodian.\*
- Must successfully complete a vision screening and a knowledge test.

#### CONDITIONS

- A qualified driver must supervise all driving (see Q&A question "3" for a full explanation of who is a qualified driver).
- Number of passengers limited to number of safety belts available in vehicle.
- Instruction permit will have the words "under 18" printed on it; issued for four years.

### 2. INTERMEDIATE LICENSE

#### ELIGIBILITY REQUIREMENTS

- Must be at least 16.
- Must have written consent of parent, guardian or custodian.\*
- Must have held an instruction permit for at least six consecutive months before applying for the intermediate license; the instruction permit may not be expired or withdrawn during this six-month period.
- Must have driven crash- and violation-free for six consecutive months immediately before applying for the intermediate license (see box far right).
- Must have completed at least 20 hours of supervised driving; a minimum of two hours must have been between sunset and sunrise (see Q&A question "2" for discussion of persons that may supervise this driving).

- Must have successfully completed an Iowa-approved or comparable driver education course, including:
  - 30 hours of classroom instruction, which must include four hours of substance abuse education, a minimum of 20 minutes on railroad crossing safety and information on organ donation.
  - Six hours of drive time with an instructor. The behind-the-wheel drive time may not be waived by a parent, guardian or custodian.

#### CONDITIONS

- May drive:
  - Without supervision from 5 a.m. to 12:30 a.m.
  - Without supervision between 12:30 a.m. and 5 a.m., but only with an Iowa DOT waiver and only to and from work or school-related extracurricular activities. The waiver form (Waiver of Intermediate Driver's License Hour Restriction, Form 431170) may be found at [www.iowadot.gov/forms](http://www.iowadot.gov/forms), and is also available at schools, Iowa DOT driver's license stations and county treasurer driver's license issuance sites. The form must be signed and approved by the school or the employer.

All other driving between 12:30 a.m. and 5 a.m. must be supervised by a qualified driver (see Q&A question "3" for a full explanation of who is a qualified driver).

- Number of passengers limited to number of safety belts available in vehicle.
- Intermediate license will have the words "under 18" printed on it; issued for two years.

**Note:** The intermediate license does not expire at age 18. A person who is 18 or older and holds an intermediate license is not entitled to full driving privileges with no restrictions until that person obtains a full license.

### 3. FULL LICENSE

#### ELIGIBILITY REQUIREMENTS

- Must be at least 17.
- Must have written consent of parent, guardian or custodian.\*
- Must have held an intermediate license for at least 12 consecutive months before applying for the full license; the intermediate license may not be expired or withdrawn during this 12-month period.
- Must have driven crash- and violation-free for 12 consecutive months immediately before applying for the full license (see box far right).
- Must have completed at least 10 additional hours of supervised driving; minimum of two hours must be between sunset and sunrise (see "Q&A" question "2" for discussion of persons that may supervise this driving).

**Note:** These requirements do not apply to a person who has turned 18 and is seeking a full license.

#### CONDITIONS

- Full driving privileges with no restrictions.
- For drivers under age 18 or age 21, the license shall have the words "under 18" or "under 21," respectively, printed on it; issued for five years to person age 17 years and 11 months or older, and for two years to person younger than 17 years and 11 months.



### REMEDIAL DRIVER IMPROVEMENT

Drivers under the age of 18 will be suspended and/or given additional restrictions, and may be subject to additional testing, if the driver:

- Commits a moving violation.
- Is involved in a crash to which the driver contributed.

Possible restrictions include, but are not limited to:

1. No driving between 10 p.m. and 5 a.m. unless accompanied by parent, guardian, or custodian.
2. No passengers, unless accompanied by parent, guardian, or custodian.

The license holder must begin a six-month (instruction permit holder) or 12-month (intermediate license holder) crash- and violation-free driving period from the date the traffic violation occurred or the date of the contributive crash to qualify for the next licensing level. If a person's driving privilege is suspended, the new period begins on the date the privilege is reinstated.

\* Written consent of parent/guardian/custodian is required. This consent may be given using one of two options:  
(1) The parent/guardian/custodian accompanies the teenager to the driver's license station to sign the consent form in the presence of the examiner.

(2) The parent/guardian/custodian downloads the Parent's Written Consent to Issue Privilege to Drive form or Affidavit to Obtain Duplicate License Form #430018 ([www.dot.state.ia.us/forms](http://www.dot.state.ia.us/forms)) and signs the form in the presence of a notary public. The young driver may then present the completed and notarized form to the examiner and the parent/guardian/custodian would not have to accompany the young driver to the driver's license station.

ONE TEXT OR CALL COULD  
**WRECK**  
IT ALL



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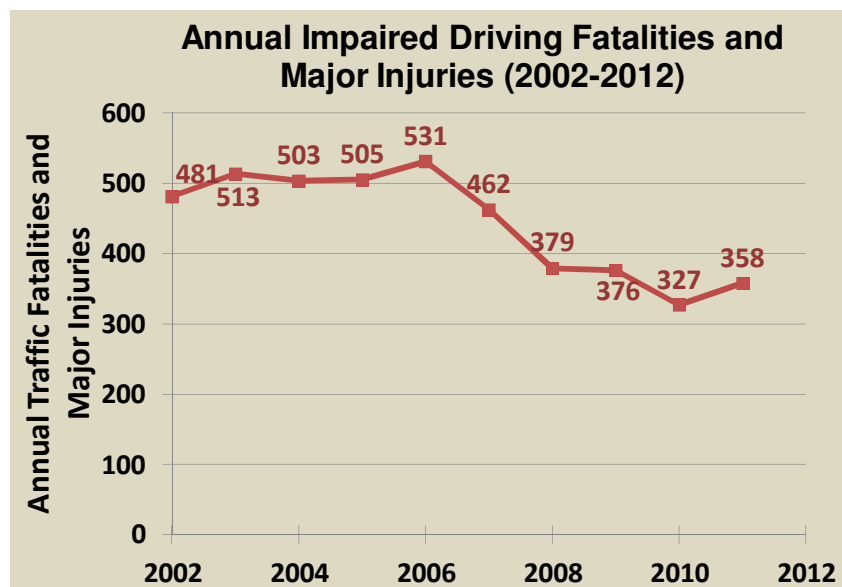


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# Impaired Driving

## How Significant is the Issue?

Impaired driving resulted in 1,886 (18%) of the severe injuries in Iowa (2007-2011).



## Other Factors Involved

- Lane Departure (74%)
- Speed (73%)
- Local Roads (63%)
- Unprotected Persons (58%)
- Roadside Collisions (53%)
- Rural and County 2-lane paved roadways are most at risk considering these factors.



## Demographics

- 75% caused by male drivers
- 31% caused by drivers 14-24 years of age
- 23% caused by drivers 25-34 years of age



## Other Facts

- Most impaired driving severe injuries occur between 8 PM-4AM (62%) and on Fri-Sun (63%).
- 51% of impaired related severe injuries involved unprotected persons.

## Location

- 65% on rural roads (State and Local Roads)
- 63% on Local Roads (County and City)
- Roads most at risk by system (% of severe injuries on that road system):
  - State – 2-lane roads (46%)
  - County – Paved roads (54%)
  - City – 2-lane roads (75%)



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## Impaired Driving



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Highly Visible/Saturated Enforcement



Ignition Interlock System



**buzzed**  
driving is  
**drunk**  
driving

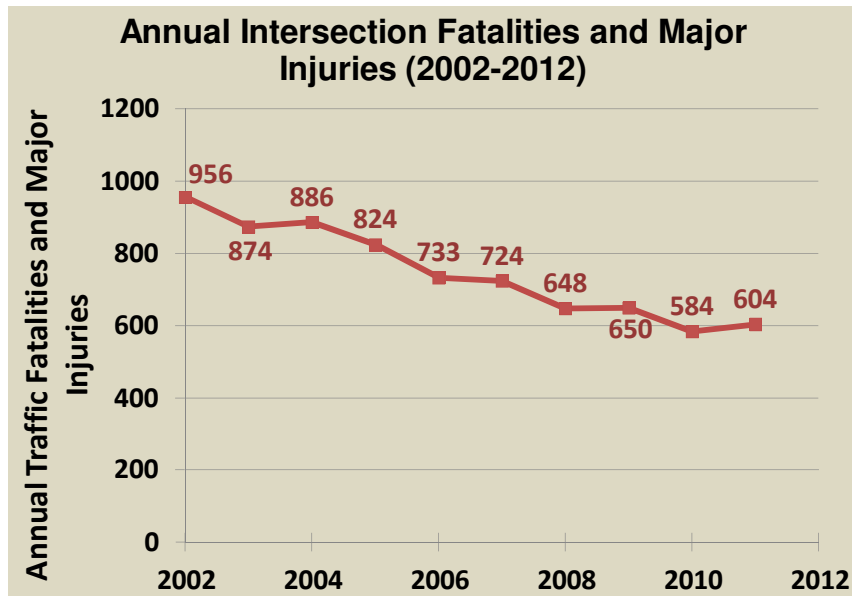


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# Intersections

## How Significant is the Issue?

3,200 (30%) of severe injuries were at intersections in Iowa (2007-2011).



### Other Factors Involved

- Local Roads (54%)
- Younger Drivers (39%)
- Unprotected Persons (31%)
- Lane Departure (26%)
- 2-lane paved roadways are most at risk considering these factors.

### Demographic

- Over 60% caused by male drivers
- 42% caused by drivers between 14-24 years of age.



### Other Facts

- 44% of the severe intersection injuries occurred noon-8 PM and 31% 8 PM – 4 AM.
- Single vehicle (56%) and rear end (20%) were most frequent collision type.
- 37% of severe injuries occurred under dark conditions. Only 3% occurred at dusk/dawn.
- 75% of severe injuries occurred on dry pavement. 10% occurred on wet pavement.

### Location

- 61% are on urban roads
- Most severe injuries on urban roads were at signalized intersections (41%).
- Urban intersections on State conventional roadways are most at risk (66%).
- Most severe injuries on rural roads were at stop controlled intersections (57%).
- Severe injuries at rural intersections are equally split between State and County Roads.
- Rural intersections with paved (53%) and 2-Lane roads (72%) are most at risk.



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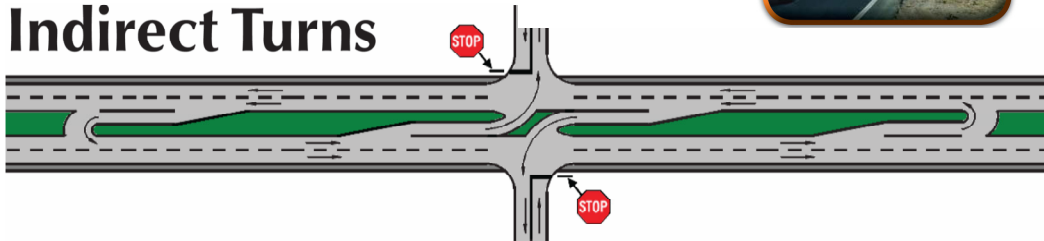
# Unsignalized Intersections

Dynamic Mainline Warning Sign



Dynamic Gap Assistance

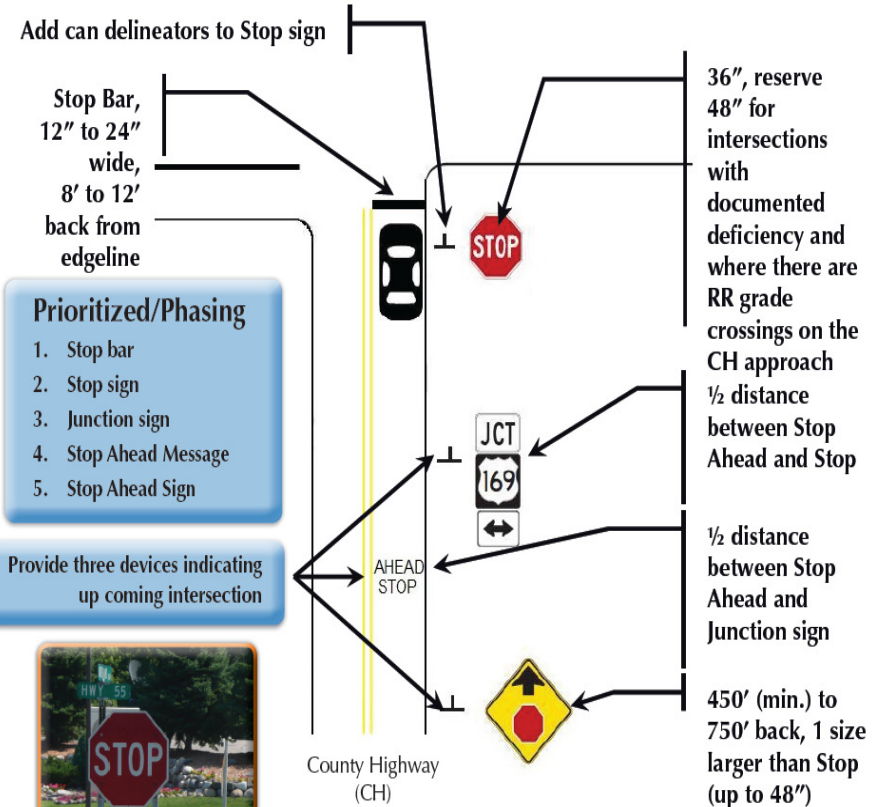
Indirect Turns



Intersection Lighting



Intersection Skew



Source: Mn/DOT Dist 3-13 County  
RSA - CH2M HILL 2006  
Intersections (3 of 8)

Enhanced Signs and Markings

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## Signalized Intersections



**Supplemental Enforcement with Cameras and Confirmation  
Lights**

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# Traffic Safety Culture



## The Socio-Ecological Model



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A scientific approach

"ENVIRONMENT"

CRASH	Driver	Vehicle	Road	Social/ Culture
Before				
During				
After				

Kadyn's  
Law  
Signed March 2012  
Iowa Senate  
File 2218



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# Inattentive/ Distracted Driving

## How Significant is the Issue?

Inattentive/distracted driving was reported for 477 (5%) of severe injuries in Iowa (2007-2011).



## Other Factors Involved

- Lane Departure (76%)
- Roadside Collisions (46%)
- Speed (40%)
- Local Roads (39%)
- Young Drivers (38%)
- Unprotected Persons (36%)
- 2-lane paved rural roadways are most at risk considering these factors.



## What demographic is most affected?

- Most severe injuries related to distracted driving:
  - 15-24 years of age (27%)
  - 25-44 years of age (29%)



## What other factors are involved?

- 84% occur with passenger cars
- Most severe injuries related to distracted driving occurred Thurs-Sat (49%) and noon-4 PM (31%).



## Where do these crashes occur?

- 69% are on rural roads (State and Local Roads)
- 61% are on the State system
- 2-lane roadways on the State system are most at risk (45%)
- Paved roadways are most at risk on the County system (80%).
- Two lane streets most at risk on the City system (71%).

